

# THE MINING AND METALLURGICAL JOURNAL.

FORMERLY THE PACIFIC COAST BULLION.

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LOS ANGELES, CAL., SEPTEMBER 15, 1896

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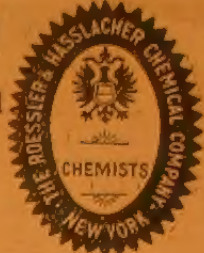
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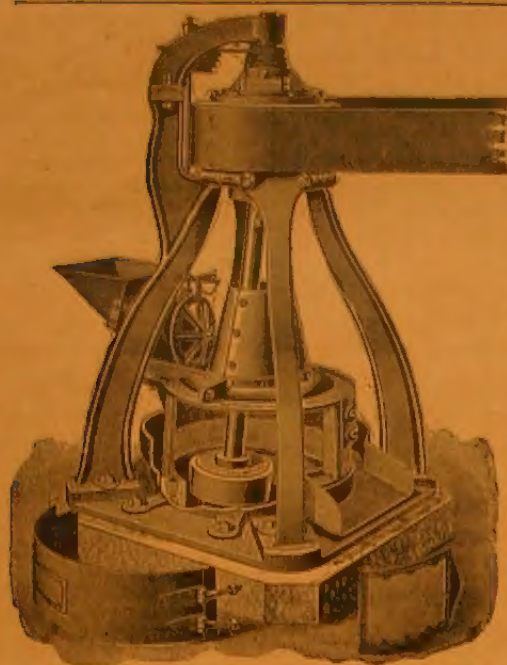
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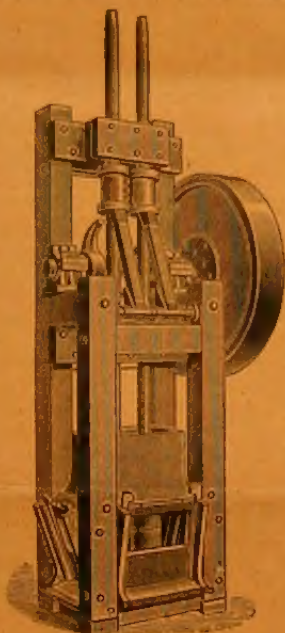
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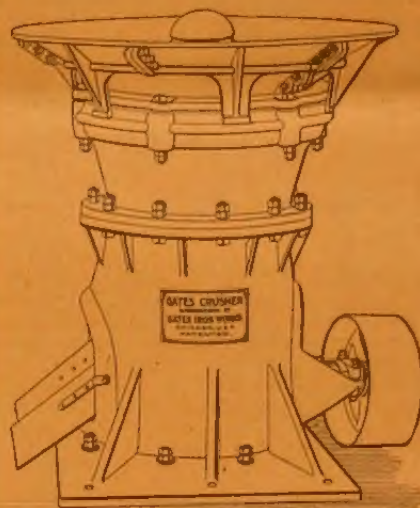


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# THE Mining & Metallurgical + JOURNAL +

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We are sure to have a harbor at Santa Monica or San Pedro. The particular location only awaits the finding of a commission of engineers to be appointed by the President. When the harbor is completed and the road to Salt Lake City is built, our transportation facilities will be all that can be desired so far as long distances are concerned.

That the road will have a profitable business from the start can hardly be doubted, for it runs through a region that already has considerable population and development, and is capable of being developed to great proportions and of bearing as large a population as of the rural portion of the Pacific Coast. It will also be a link in the shortest line across the Continent by several hundred miles, and the cost of construction and maintenance will be less than that of almost any road in the mountain region.

With all the facts and conditions well known it is a cause of surprise that our capitalists and property holders do not take hold of the enterprise and put their money into it.

## INCONSISTENT AND ABSURD.

The goldites have much to say about cheap money, the fifty-cent dollar made out of silver.

Yet the whole brood think bimetalism is a desirable thing to have, and the republican party is pledged to promote it through agreement with the commercial nations of Europe. That is to say, the goldites will consent to the manufacture of the fifty-cent dollar providing it can be forced upon foreign nations, or if they can be hoodwinked into the acceptance of such a dollar. The position is, we are willing to defraud ourselves if we can rope in foreign nations and subject them to the same fraud. The idea of the fifty-cent dollar coined from silver under a United States statute is a creation of a feeble or deranged brain.

It is formed upon the theory that when 412½ grains of silver when coined is worth only what they would bring in the market, and it must be remembered that this is a value measured by gold, which has a fixed money value, coined or uncoined, because the mints are opened to its coinage without cost to the owner. What the commercial value of gold would be if demonetized can only be determined by the experiment. It certainly would not be equal to its coinage value, because to refuse coinage would lessen the demand and according to natural law the commercial price would fall. To attempt to maintain commercial parity of the two metals as commodities would be futile, for production and consumption vary. Parity can only be secured and maintained as coins through the law providing for their coinage. If gold were demonetized the present gold dollar would commercially be a cheap dollar, probably no greater than a fifty-cent dollar. Free and unlimited coinage of either or both metals will soon bring about substantial equality in commodity and coinage values.

## FOREIGN CAPITAL.

One of the arguments for goldism is that if adopted, English and other foreign money will be invested in this country. When the nation was young and undeveloped the idea of getting money from the old world was defensible, but now that we have become strong in population and ability to help ourselves, with natural resources unsurpassed if equalled any where in the world, it is the height of folly to seek foreign capital on which we must pay interest or dividends in gold, which is a source of constant depletion of our gold money. While the borrowed capital is being expended times are easy and everything moves on swimmingly, but pay day of interest or dividend comes around very soon and finally the principal becomes due, and the pressure becomes embarrassing. One of the causes of the present hard times is the demand for payment of foreign indebtedness.

It would have been better had we foregone some of our enterprises until they could have been carried forward with our own money. There is no trouble about our having money enough if our monetary resources are developed and utilized for our own benefit and our economic policies are such as to protect and encourage domestic development, and avoid paying to others for that which we should produce. We shall probably become wiser as a nation as time proceeds, but it looks as if it would require great tribulations to make us more watchful of our own interests. Let us depend on ourselves and do only as fast as our own capital will permit, taking care to conserve for ourselves all the wealth we produce, and not let it slip through our fingers to the enriching of foreign nations, as has been going on for many years.

## INTERNATIONAL COINAGE.

No one doubts the value of an agreement under which gold and silver shall be coined and used as a money on a reasonable ratio in international commerce, but such a consummation can not be expected. As has been often stated there have been three conferences without result even in propagating bimetallic sentiment among the financiers and statesmen of Europe. The statesmen of Great Britain never take action on financial questions which is not approved by bankers and money changers. Before anything can be accomplished Great Britain must be convinced that bimetalism is to her interest, or she must be forced through such economic and commercial policies as will deprive her of the gold monopoly. No nation in business affairs is so unaccommodating and exacting.

Thirty years ago there was a commission composed of delegates from the principal nations of the world to endeavor to agree upon some coin to be recognized as the unit of value among the nations. With entire unanimity there was a concurrence on the French five franc, because to adopt it would require less change in the coins of the nations than the adoption of any other coin. It required a reduction of metal in our gold dollar to the extent of three cents, and of the English pound sterling one penny. All the nations assented to the agreement of the commission except Great Britain, and she refused simply because it required one penny reduction of the pound. That at least was her pretense, but the real reason may have been her Anti-French feeling. Those who have confidence that Great Britain can be argued or importuned into an international coinage agreement are to be pitied for their credulity.

## THE FOUR ERAS.

BY JOHN SHIRLEY WARD.

The following is copied from the Los Angeles Record of August 29th. It was worthy of consideration of all who are in doubt as to the debt-paying power of silver. Cut this out and paste it in your hat:

"There have been four debt paying eras in our national debt since 1866. The first era was from 1866 to 1873, and we call it the 'greenback era' because the currency was greenbacks and there was but little gold in circulation.

The second, from 1873 to 1879, is the era in which the mints were closed against silver coinage.

The third from 1879, when we were coining silver to 1891, when we ceased coining it under the Sherman act, and this we call the 'era of silver.'

The fourth was from July, 1891, to November, 1895, after silver coinage had ceased and we were on a gold basis, and this we call 'the gold era.'

## HOW MUCH PAID.

In the greenback period from 1866 to 1873, we reduced our debt from \$2,773,236,173 to \$2,234,482,993, having paid on it \$538,753,180. This was done in the six years while on a paper basis.

Silver was demonetized in 1873 and at the time, our debt was \$2,234,482,993. How much did we pay on the debt from 1873 to 1879? Instead of paying a dollar on the debt, we added to it \$106,184,239, making the debt in 1879, \$2,340,567,232.

This was what was done in the era when we coined no silver.



In 1879, under the Bland act, the mints began pouring out silver dollars and continued coinage till July, 1891, though the Sherman act was not actually repealed till November 1, 1893. Let us see how our debt fared during these years when our mints were flooding the country with silver.

Our debt in 1879 was \$2,340,567.232, and in July 1891, when the mints closed again, was \$1,546,961.695, having been reduced in that period by the payment of \$793,605.537.

This is what the Silver age did toward the reduction of our public debt.

At the closing of our mints to silver, July, 1891, our debt was \$1,546,961.695, and our record brings us down to November 1, 1895, four years.

These four years we have been on a gold basis and they should have reduced the debt very largely. But instead of reducing the debt they added to it \$170,520.084, making the debt on November 1, 1895, \$1,717,481.779. These are facts that no gold statistician can dispute.

#### SUMMARY.

1866 Public Debt.....	\$2,773,236,173	
	DECREASE	INCREASE
1866-1873 Greenback Era.....	\$538,753,180	
1873-1879 Mints Closed to Silver.....		106,184,239
1879-1891 " Open " " .....	793,605,537	
1891-1895 " Closed " " .....		170,520,084
Total.....	\$1,332,358,717	\$276,703,323

From the above the most ordinary reader will see that during the five years after silver was demonetized, we piled up \$116,183,239 on our debt and the natural inference is that if we ever intend to pay our national debt silver must bear its part to do this; it must have equal rights with gold at our mints.

**Not One Dollar Has Ever Been Paid on Our National Debt while Silver was Denied Coinage at Our Mints.**

#### WATER FOR IRRIGATION AND MINING IN THE SOUTH-WESTERN STATES.

The climatic and geological conditions of the south-western States, and those of the Australian colonies are so much alike, that they make the environment of the people of both countries almost the same. These conditions apply in the same manner, to the agricultural and mining interest of both countries. The laws and legislation effecting these industries are of mutual interest to both countries. Hence it is, that the recent action of the Government of Western Australia, in introducing the Coolgardie Water Supply Bill has special interest to the residents of the South-Western States, both from the magnitude of the enterprise and amount of capital involved, and the benefits to agriculture and mining due to its accomplishment. The bill provides for 5,000,000 gallons daily—2,000,000 for domestic purposes, sufficient for 100,000 persons, and 3,000,000 for mining purposes, sufficient to work 300 batteries. The total cost is estimated at £2,500,000 pounds (or say \$12,500,000). The price of the water is to be three shillings and six pence (or say 87 cents) per 1,000 gallons. It is claimed the scheme would reduce the cost of living and would largely increase the yield of gold. Supposing that 300 batteries crushed half an ounce per ton, the total output would be of the value of £7,000,000 (or

\$35,000,000). The proposition is to bring water from the Darling range some hundreds of miles distant, to the gold fields.

It is also proposed to drill for artesian water in a similar manner as was done in New South Wales, where the first bore was sunk by the Government 17 years ago, there is now a daily flow of 40,000,000 gallons.

In Queensland the daily flow from public and private sources combined is estimated at something considerably over 105,000,000 gallons per day.

We quote these facts to show that the water supply for irrigation and mining purposes for the South-Western States, which has been in part reported on by the Federal Government through the Geological Survey investigations, ought to be undertaken as a Government work by the several Territorial authorities, State Legislatures, or County Board of Supervisors, according to the magnitude of capital or work involved in different districts. The The prospector is the pioneer of civilization in the South-West. Having discovered

minerals of economic value, he is handicapped in his efforts to develop them for want of a water supply. It is the legitimate sphere of our Territorial, State, and Municipal authorities, to foster the industrial development of their respective districts by storing and developing water in aid of the prospector, miner and rancher, and thereby render the country fit for habitation. To delegate this duty to private enterprise when it is required on a large scale, is to retard the settlement of the country and to neglect a public duty. Make the country fit to live in by storing and developing water, and capital will soon find profitable investment in mines and ranches, in many sections of our large desert country. In developing the natural resources of a new country, the policy of the Government must necessarily be the opening and operation of public works, for these benefits are lasting. By giving our desert mining camps a water supply, the facilities for making a living are increased, and any agricultural land in the district is made valuable with the aid of a water supply, and a market is furnished by the miners and the cost of living is reduced. These improvements soon render necessary the building of railways. State or Municipal Water Bonds can be sold in the East or in Europe, to accomplish the water development of the South-West, as has been done with marked success in Australia. The districts requiring this aid are too numerous to be mentioned, and the subject has been already referred to in these columns on former occasions. The subject is so large and important, that our Legislators are required to establish a policy of water development, which will extend over a long period of years before the desired end can be accomplished. There are no public lauds in the market which can be cultivated without the aid of irrigation. This policy would give employment at the present time when the labor market is overtaxed, and capital is seeking in-

vestment in a safe enterprise. The present time when we have elections in prospect, is an opportune moment for the discussion of this subject by intending candidates, for State Legislatures and County Municipal Governments. Elect only such men to office as those who will promote the industrial development of the South-West, by water storage and development in aid of irrigation and mining industries.

#### THE TRANSMUTATION OF SILVER INTO GOLD.

The announcement made in some New York daily papers (the New York Press of August 8th, the Evening Sun of August 10th, and the Journal of August 16th) to the effect that Dr. Stephen H. Emmens had discovered a chemical process by which silver could be transmuted into gold, was the occasion of the editor of the Engineering and Mining Journal writing to Dr. S. H. Emmens, to get him to tell more about it. He replies at considerable length, and refuses to do so in justice to his colleagues and himself, but seems to be saying too much when he says, "It would be tantamount to notifying the money market of every country that gold was no longer a standard of value." Such a discovery would only tend to make bimetalism a greater necessity than ever, for both gold and silver are only standards of value by consent of the nations and individuals using and propounding them. And again, when he says, "If gold is to remain saleable at the standard price, it must not be allowed to enter the market as a manufactured product. If the whole production of the silver of the world for the last year, which was \$165,000,000, was converted into gold, by Dr. S. H. Emmens' process, at a loss of 25 per cent, it would amount to \$124,750,000 only of gold for increase by manufacture. Silver, however is required in the arts and for small coin, and the world's supply is not equal to the demand, so that there is no fear of a flood of silver or a flood of manufactured gold. He says, "While thus guarding our fortunes, I may, I think, without imprudence concede so much to the cause of science as to say that the essence of my discovery consists in the extension to solid bodies and molecules, *per se*, of Avogadro's doctrine of critical temperatures." Atomic volume is arrived at by considering the relation of molecular weight to specific gravity. Specific gravity, however, depends not only on space occupied by atoms, but on unoccupied space as well." In that letter, and one which follows, he states that the Journal article printed below is true, but refuses to say if by intense cold, great pressure, electrical currents, or other means, the molecular change, which is so great as to amount to a chemical and physical change and contraction of the silver into a smaller amount of a substance, which is the chemical equivalent of gold.

From what we know of the excellent character and veracity of Dr. S. H. Emmens as a man, and his high standing as a chemist, we are forced (against the convictions of a lifetime, spent under slowly evolving chemical and natural law) to wish him success in the commercial features of his discovery, which, if successful, will bring him the merited reward and make it the discovery of this generation.

The following statement, covering the general claims referred to in the correspondence given above, was published in the New York Daily Journal, of August 16th, over Mr. Emmens' signature, and its substantial correct-



ness is affirmed by him above. The article is here given in full:

#### THE TRANSMUTATION OF SILVER INTO GOLD.

Our work, which converts silver into gold, had its origin in the course of certain investigations which I undertook for the purpose of preparing chemically pure nickel. This was in the year 1892.

Commodore Folger, who was then chief of the Bureau of Ordnance of the United States Navy Department, had forwarded to me for investigation a very remarkable specimen of rustless nickel steel, which it was proposed to use as a material for torpedo netting. I found the physical properties of this material to be so extraordinary that I desired to investigate the physical behavior of a similar alloy made with absolutely pure iron and pure nickel.

In attempting to prepare these pure metals a certain product was obtained which seemed to differ from anything recorded in the text books. The same product was subsequently found when the investigation was extended to the case of metallic cobalt.

And, finally, those who were associated with me in the investigation agreed with me in considering that the phenomenon observed afforded indications of the existence of some substance common to the whole of the elements in what is known as Series 4 of Group 8 of the Classification of Chemical Elements, now universally adopted by scientists, in accordance with what is known as the "Periodic Law of the Elements." We did not further pursue the particular line of investigation upon which we had set out, because it appeared to us almost self-evident that if we were right in supposing a common substance to be present in any single series of elements, the same would hold good for each group.

And as Group 1 of the classification contains the precious metals—gold and silver—it was obvious that our time and attention should be directed to these metals rather than to any others. It was determined, therefore, to pursue the work in a persistent and methodical manner, each member of the scientific syndicate—and there were four of us—taking up his own branch of inquiry.

Realizing also the vast pecuniary interests at stake, it seemed that no single one of us should be placed in a position of complete knowledge. We were all to be kept advised of the results obtained by each of us, but we were not to be fully informed as to the details of the methods and apparatus employed.

It may be that as director of the investigation, I am, perhaps, more familiar with what has been accomplished than is either of my associates. I am, at any rate, in a position to say, now that work on a practical scale is about to be begun, that I see no insuperable difficulties in our way.

It is, of course, out of the question for me to make public the whole of our knowledge in this matter. But I may, without danger to our interests, give a general explanation of our work which will be satisfactory to the scientific world.

Our starting point, so far as silver and gold were concerned, was afforded by the remarkable discoveries of Mr. Cary Lea with regard to the changes that could, by laboratory methods, be induced in the molecular structure of metallic silver. That gentleman discovered a means of causing silver while still in a metallic condition to enter into aqueous solution.

In other words, he discovered a means of reducing metallic silver to a condition of ex-

tremely minute subdivisions. It was found, as might have been expected by any one familiar with the periodic law of the elements, that this subdivision of metallic silver was attended by very considerable changes in the physical properties of the substance.

The inference was obvious that if such subdivisions could be pushed a stage further, the silver molecules would become dissociated if they were in themselves of composite structure. And as all chemists have long been agreed respecting the reality of such composite structure, we felt absolutely sure of our ground.

Accordingly, when by certain physical methods, and by the aid of certain apparatus, we succeeded in bringing about a further subdivision of the silver, we were not surprised to find that the substance obtained differed so far from ordinary silver that it could no longer be regarded as the same elementary substance. It seemed to require a new name and a new chemical symbol.

Inasmuch, therefore, as our theory was that this substance was common to both gold and silver, and in reality was the raw material out of which both gold and silver were constructed by the hand of nature, we named the substance "argentaureum." We also gave it the chemical symbol "Ar."

TO BE CONTINUED.

## CORRESPONDENCE

### CALIFORNIA.

#### On the Desert.

GARLOCK, CAL., Sept. 3d, 1896.

EDITOR JOURNAL:—The excitement grows apace and people come and go as they always do at a great mining camp. Many good miners are now coming in as the weather gets cooler and we may soon expect to see the mines of this section worked according to mining principles. Heretofore the most of our people have been farmers who expect to either gather the yellow metal from the surface or find it in the grease wood roots. One man from Randsburg is credited with bringing a hundred sacks of guyetta grass to the mill at this place. It was quite rich but the mill has no threshing machine attachment and it is very difficult to work hay through 60 mesh screens.

Last Sunday a new strike was made within a few hundred yards of Garlock by a San Pedro boy which is setting us wild. It seems to be almost one-fourth gold and on the same ledge as the Heald mine, but on the south of the mountain.

Great yarns are daily circulated about the rich finds at Panamint, and to back them up there are hundreds passing on the Borax road for that country. Only now and then one comes back and they seem to be out of breath in their hurry to buy a few of the necessities of life and get back.

A new mill is being put in at this place which will be running in a very few days. This mill uses no engine but strikes from the shoulder, that is, the steam goes direct to the top of the stamps where it gets in its deadly work.

Patrick Reddy, of San Francisco, is sinking a shaft below Goler, three miles from here, out of which he expects to pump water to use in a big mill at Randsburg. They are now down 370 feet and reported to have a large flow of the life-giving fluid. The price of whisky is expected to weaken and the whisky itself will no doubt weaken in proportion.

When the days are shorter and there is not so much blessed sunshine, we are assured that this will be a second Cripple Creek if it does not indeed give that renowned district second place. The gold is here all right but it is not coined and its owners are not yet hiring much work done. One reason is the scarcity of mills where it can be worked and they are scarce because water is supposed to be scarce. Time will be necessary to remove this old superstition, but once we remove it we will have water wherever we go down after it.

Capt. Dan'l. Conner, Mr. Jargason and another man, all from San Pedro, came in to Cow Wells last week. They expect to settle down for business at the Heald camp.

Mr. Carpenter, the new merchant at Garlock, is doing a big business with the surrounding camps. He now has the P. O. and telephone office.

C. A. Koehn & Co. have moved their store to Randsburg and will hereafter also keep a supply of goods and an eating station at Kane Springs. Last Wednesday noon when your correspondent was there they gave dinner to thirty-one persons and I judge fifty others passed between 11 a. m. and 2 p. m., who had their own camping outfits.

Asa Rodamucher, the owner of El Paso mine is authority for the statement that a 20-stamp mill is arranged for at his mine to be in operation in ninety days. Boring for a better supply of water will begin at once. This mine is seven miles N. E. from Goler.

Mr. Elliott, of Pomona, who is putting in a line of pipe and extensive pumping machinery at Last Chance is sinking a well ten by twenty feet and has a large flow of water at the depth of eight feet.

There is now a camp of some thirty placer miners at the foot of Black Mountain at Mesa Springs. They are said to be doing well.

Freemont Peak is one of the latest sensations and water has been found in great abundance in the Lake between that point and Randsburg.

The Board of Supervisors of San Bernardino county are making a commendable effort to secure the trade and travel of this country and propose to build and maintain a county road via, Victor, Kramer and Freemonts Peak to the county line near Randsburg. This will give the latter a R. R. outlet at Kramer only 20 miles away, and will be nearer from the Borax Works Panamint and almost all the large mining camps except Red Rock.

The Argus Range, north-east of this point is receiving some attention lately.

There was a shooting scrape at Randsburg last week at a dance. No one hurt.

OLD COR.

The assistant manager of the Harqua Harla Gold Mining company, limited, in Yuma county, reports the operation of the cyanide plant for the month of April as follows: Pulp treated 3,000 tons; average assay of pulp, \$4.43 per ton; extracted according to assays, 59 per cent; bullion realized, \$6,565; miscellaneous revenue \$20; total revenue \$6595, operating expenses, \$2,784; expense, \$623, total expenses, \$4,407.

The Felipe Smelter, owned by Sr. Enrique Creel, has been leased by the Consolidated Kansas City Smelting and Refining Co., and under their supervision operations will be commenced next month. Two more furnaces will be built making four in all.



## Miscellaneous Mining News.

### ARIZONA.

#### WHITE HILLS.

The White Hills Co., have in their employ over 75 men.

Jack Ellis & Tarnow are getting ore on the Norma Fraction.

Perkins & McDonough are taking rich ore out of the Daisy.

The White Hills Co., are boring for water with a diamond drill.

Nelson & Rodenkirk are taking out rich ore from their lease on the Prince Albert.

Geo. Koster is foreman of the Treasury and Emma mines. Geo. will get the best results for the least outlay.

Will Carleton is still making money sorting the dumps on the Prince Albert. If there is a chunk of ore over the dump Bill will get it.

In the cross-cut from the bottom of the 125 foot shaft on the McKesson mine 16 inches of high grade ore was struck. It is a big strike. —*Mineral Wealth.*

It is reported that a recent discovery of copper has been made within 30 to 35 miles of Tucson, which is not alone very rich but extensive. If it only half fulfills the expectations of its owners, it will be a bonanza for them and a wonderful help to that city.

A. J. Doran, of Goldfields, was a visitor at Tombstone, September 4th. Mr. Doran was there to examine into a mining property in that district upon which negotiations have been pending and upon his favorable report will consummate a deal. Mr. Doran has many friends in that section who were glad to meet him.

Major Fechet, superintendent of the Old Glory mine at Oro Blanco, arrived in Tucson Sept. 1st. The machinery is being placed in position as rapidly as possible, and Major Fechet says that everything will be in running order about the first of October. There are fifteen men now employed in taking out ore.

It is reported that Goldfield is enjoying a boom. A new body of rich ore has been discovered in the Bull Dog mine and quite a large force of men are at work upon it. The full complement of stamps is dropping at the Mammoth property, and altogether conditions seem very favorable for this promising camp.

Geo. H. Holmes and other Colorado parties have purchased the Belmont mine on Cherry Creek, and will push work on it actively. It is said to be a very promising property.

Some time since the *Journal-Miner* made mention of the purchase of the Emporia, formerly the "110" mine, on Groom Creek, near Prescott, by W. A. Storts, H. H. Keys and A. B. Demary, and of the further fact that while working the property under lease and bond, they had taken out the entire purchase price of the property in ore. The mine continues to keep up its record, as Mr. Storts today brought in a bar of gold bullion valued at \$550, which was extracted from twenty tons of ore and run at Clark & Adams' mill, which they have leased. This bar of bullion represents just sixteen days' work for the three men, as during that time they took the

ore from the mine, hauled it to the mill, cut the wood for making the mill run and ran the ore through the mill. The shaft on the mine is down to a depth of 110 feet and two drifts have been run from the shaft, one fifty feet in a southerly direction and one twenty feet. All the openings are in ore, as there is not a break in the entire distance that it has been worked. The ore in the narrowest place is two feet wide, while in places it widens out to eight feet. Surface ore taken from this property went as high as \$70 per ton, but for some reason or other the claim was permitted to lie idle for a number of years. The ore body from which the above was taken was eight feet wide, and as the result obtained by the mill run was an average of \$27.50 per ton, it will be seen that the property has not lost any of its producing qualities with depth.

The Wind Fall mine, owned by Charles Born and sons, is situated about ten miles from Prescott and east of the Howell and Prescott wagon road about one and a half miles. They have a tunnel run on the ledge about 100 feet, and a winze or shaft sunk on the ledge at the end of the tunnel which shows free milling gold ore all through it. The shaft is about 25 feet deep. The body of ore is from one foot to nearly three feet at the bottom of the shaft, and will average seven ounces in gold with a good per cent of copper. Several other claims belonging to the above parties show gold, copper and silver, only a small part of the latter. Considerable prospecting is going on, with good results as far as seen, and a good number of quartz ledges are in sight.

Tom Stinson is driving a long tunnel on the Segregated Blackfoot mine near Kingman, Mohave county, all in ore. Tom will soon be in Kingman with a car load.

The Grand Prize mine and mill, at Payson, are in full operation, with the prospect of a long and profitable run. Coleman's mill is likewise busy. Work has commenced on the Mazatzal copper mines. It is rumored that E. E. Wann, the Colorado mining man, is putting up for the work, and is liable to make a sale of this valuable property.

J. S. Odle left on our table a valuable specimen of ore from his claim in Powers' canyon, Gila county, near Irion's ranch. The ore carries \$20.40 gold per ton, considerable silver and a large percentage of lead. The ledge is four feet wide, and the prospect is one of the most promising in that section. The proposed wagon road from Mesa to Globe will pass close by the claim, and enable Mr. Odle to ship his ore and realize a good profit.

A pump and hoisting machinery for the United Globe Mines arrived a few days ago. —*Belt.*

Attachments were issued last week against the Iron Springs Mining Company, aggregating about \$3,500, and an officer went out to Last Chance Mine to take charge of the mill and steam hoist. It is stated that Chicago capitalists, who are interested in the property, will arrive in Prescott in a few days prepared to not only settle up all its indebtedness but to pay for the property as well.

The new boiler for the Cedar Valley Gold and Silver Mining and Milling Company, at Cedar, near Kingman, is expected to arrive almost daily.

A deed has been filed for record, at Prescott, from F. R. Biedler, to the Big Bear Gold Company for the Virginia Gold Company's property.

A carload of machinery arrived in Prescott, September 10th, for the Jersey Lily Mine. It consists of a boiler and engine and one of the finest steam hoists ever brought to that section. It will be taken out to the mine at once and be placed in position when work on that property will be actively commenced.

#### Reduction Works.

Chas. Tozier, expert for Chas. Lane, the California millionaire, accompanied Judge Murphy, of Kingman, Arizona, to Mr. Lane's mines at Cerbat last week. On the advice of Mr. Tozier, Mr. Lane has had a number of men at work on these mines for some time, and he is more than satisfied at the way they are developing. Considerable work has been done on these mines before Mr. Lane took hold of them, and the ore body has been large from the surface and of a fair grade. If the ore continues as at present, large reduction works will be erected in the most convenient place to treat not only the ore from these mines but other ores from the county. The ore is now being tested in order to determine the process best adapted to the treatment.

A gang of men is to be put at work on the Hermit copper mine, Slate creek district, near Prescott, to sink 100 feet. There is five feet of good ore now exposed in the bottom of the shaft on this mine, which runs parallel to Wilson & Bowdre's Black Oak gold mine. Frank Williams is about to commence extensive operations on the south extension of the Black Oak.

Malcolm McLeish has returned from Wickenburg and will resume operations with the cyanide process, on the old Vulture tailings, which he has been working successfully for some time. He was compelled to discontinue work some time since on account of heat.

A bar of gold, worth \$4,250, was brought in to Prescott, September 3rd, from the Little Jessie mine. This mine continues to keep up its record as a bullion producer.

One of the most important mining deals ever known in the southwest is now materializing in the White Hills camp of Mohave county. R. T. Root, the manager, who is supposed to be a representative of the Dave Moffat syndicate of Denver, is buying up all the valuable claims of the district. Several camps have been formed by him for the handling of the properties. It is the belief of all interests that within a few months hundreds of men will be employed, and that the camp will rise to a front rank in Arizona as a bullion producer.

#### CYANIDE PROCESS.

##### Its Introduction and Growth in Arizona.

Mr. J. F. Johnston, who is the Arizona and New Mexico representative of the MacArthur-Forrest Cyanide Process, is in Tombstone, on a regular tour, looking after the interests of his company and the collection of royalties.

From Mr. Johnston, who is himself a thorough chemist and assayer, and has been connected with the company since its organization, some interesting facts are gleaned as



to the number of cyanide plants in operation throughout Arizona. But a few years since not one cyanide plant was in operation in Arizona, owing to a general distrust of its successful workings, but now that the system has demonstrated beyond doubt that it has passed the experimental stage and proved an established fact and a boon to the mining world, the Arizona field is being rapidly covered, and already some fifteen plants are in operation, and many more in contemplation.

At Harqua Hala, a 160-ton capacity system is working—the largest in the territory. One plant at Fools Gulch, of 100 tons capacity, ranks next; Congress one of 80 tons; at Wick-enburg two plants of 60-tons each are working; at Seymour one of 40-tons; at Tombstone four plants of 10 to 30 tons each, and numerous other plants throughout the territory on small scale, from 5 to 15 tons capacity. At El Rio a large plant is now being built and also one at Golden; the one at the latter place being erected by W. C. Davis of Tucson.

In reference to the treatment of refractory ores, Mr. Johnston states that every difficulty has been surmounted, and the most refractory dumps can and are now being successfully operated with profit. As evidence of the wonderful possibilities of the system he cites instances where ore is now being treated at the astonishingly low figure of 82 cents per ton.—*Prospector.*

Another important discovery of ore has been made in the Old Dominion copper mine in Globe, which is very large in extent, and gives the Old Dominion a long lease of life.

G. Gottschalk has deeded one-sixth of the North Star mining claim near Prescott to A. C. Walters.

A deed has been filed for record from A. C. Walthen to Ray R. Hill and others for one-third of the Petosky and other mining claims located near Prescott.

John Harlan will shortly erect a Huntington mill, of ten tons daily capacity, in Pine Flat, near Thomas Roach's residence not far from Prescott. It will be used for working custom ore.

#### CALIFORNIA.

##### KERN COUNTY.

Tibbets & Hooper, of Isabella, have put in a new concentrator in their mill at that place, those formerly in Big Blue at Kernville having been removed several years ago.

Will J. Gilliam has recently struck a good prospect on the ridge between Hot Springs Valley and Kern River near Isabella. He has sunk a tunnel about 300 feet and is in \$50.00 rock.

T. W. Helm has filed two locations at Bakersfield of five acres each for mill sites "in the Greenhorn Mountains," and also a mining location in the same section of the country.

The mining fever still has a firm grasp on the prospectors in this county. During the past month there were fifty-one locations filed in the Recorder's office at Bakersfield.

Billy Gilbert will start tomorrow for the Blue Chief mine on Greenhorn. Development work will be commenced in earnest

when he gets there and the boys will proceed to take out that ledge of \$700 rock. In drifting a tunnel they found rock that assayer Wallace of Jewetta says is worth \$250 a ton. It is said that in the ledge there is a vein six inches wide that will run \$750 to the ton.

#### RIVERSIDE COUNTY.

##### A Good Thing.

Supervisor Shaver, of Riverside, reports that he has had a well dug about half way between Palm Springs and Indio, on the road between the places, and that hereafter travelers will find a good supply of water at that point. The well has been substantially curbed and supplied with a bucket and ropes. This well is one the Board ordered dug some time since, and its completion will be of great service to every one who has occasion to travel over that sandy waste of desert.

Messrs. Hawtrey and Rising, who formerly operated the gypsum mill at South Riverside, now Corona, have returned to the above place and are making an examination of the works preparatory to starting the institution going again.

Reports from the Pinon Mining District are very encouraging.

The Lost Horse Mine has just struck a ten-foot vein of one hundred dollars ore.

Other rich strikes are reported from the vicinity of Tingman & Holland's mill at Pinon Mountain.

Development work goes steadily on at the Desert Queen Mine, Pinon District.

#### SAN BERNARDINO COUNTY.

##### The Road to Randsburg.

The trade from the Rand mining district is going to San Bernardino in the future, or at least such seems to be the opinion of those people who have been in that promising mining section since the opening of the new road, which was completed recently from Kramer to Randsburg. Supervisor J. G. Turner returned to San Bernardino from the Rand the last of August, where he has been on a tour of inspection, and gives a very flattering account of the feeling of the miners over the action of San Bernardino county in constructing the road.

Mr. Turner says there was no small amount of enthusiasm over the direct bid which that city made for the patronage and added to this friendly feeling is the fact that under the existing circumstances the trade would naturally come to that city. Heretofore the nearest supply station has been Mojave, and in order to reach that point it has been necessary to traverse an indifferently good road many miles in length. The construction of the 26-mile road to Kramer, the nearest railroad point, has opened up a reasonably near railroad connection, with a good route to be traversed and with a grade which, if anything, is a little down, so that the trip is an easy one.

Another very marked advantage is that in going from San Bernardino to Randsburg only one day is required. Any one can take the morning Santa Fe train and be landed in Randsburg by nightfall, while by the Mojave route two days are necessary for the trip. Thomas McFarlane, in company with the Talmage brothers is contemplating, and has made the preliminary arrangements to open up a stage line making regular trips daily, if the traffic

will warrant, from Kramer to Randsburg. It is also probable that this company will commence work on their own responsibility to develop water in the near future, although all hope has not been given up of securing an appropriation from the county to carry on the work. In case this is done there is now a practical assurance that water can be obtained at a small expense which will make the route a still more desirable one for the miners to traverse.

During a conversation with the assistant general traffic manager of the Atlantic and Pacific railway, Mr. Turner was told that an attempt would be made to carry the ores from this mining camp to Pueblo for handling, and that it was possible that a rate of \$8 a ton would be offered from Kramer to that city. This rate is about half the present rate, so that an inducement would be offered to the miners to handle their product over this route.

The San Bernardino operators who are in the camp seem to be in a prosperous condition, from the reports which were made to Mr. Turner during his visit. The Rand mine, which is owned by Burcham, Moore & Reddy, has a ledge uncovered for some distance which averages 75 feet in width, and runs \$35 to the ton. The richest ore at the present time from this, which is the latest report, is carried in a stringer only a few feet in width. Gen. McComb of San Bernardino, in company with R. Powers of Oro Grande, is working some very rich placer claims and is said to be making profitable cleanups.

#### LOWER CALIFORNIA.

##### Alamo Notes.

(Extracts from the Lower Californian.)

Messrs. Hartzell Davis & Bliss of the Viznaga mine in Mexican Gulch are running their ten-stamp mill sixteen hours out of the twenty-four. Their piping system will soon be complete which will furnish them sufficient water to keep the mill in continuous operation.

The Centipede mine in Mexican Gulch is a promising prospect with abundance of ore.

Anglo Cremonesi has a shaft, down seventy feet on a piece of ground he denounced, between the Viznaga mine and Italia Libre. It shows a good ledge at the bottom.

Luis Navel is running the old Lane Mill at Alamo pretty nearly all the time and is meeting with success.

Mr. Saville, superintendent of the Princesa company's mines, is working the St. David and the five stamp mill is in operation night and day.

P. L. Griffin, of Los Angeles, is sinking on the Moctezuma and has a good ledge. G. Raffl is prospecting the Rattlesnake and Messrs. Churcher & Sibbitt on the IXL are taking out some good rock. Mr. Church, another pioneer of Alamo is working a rich little stringer to his satisfaction.

Messrs. Firmin and Hudson were working the San Vicente which it is understood is a very favorable looking prospect, down fifty feet with a two-foot ledge. Quite a deal of money was taken from this mine by its former owners.

J. M. Gonzales has been prospecting the Never-Give-Up, which shows a very good ledge.

One of the most promising mines in this district is the Elsinore. It is situated some



400 or 500 feet above the level of the creek bed, has a well timbered shaft in a good state of preservation and is down seventy feet on a vein from eight to ten feet in width which has every appearance of being a permanent one. It is very rich in spots and some of the ore will run up in the hundreds. Some rock selected at random from the lower drift prospected very well in the horn spoon. It was formerly worked by the El Paso company and the ore averaged an ounce to the ton. It is now the property of Messrs. Navet and Tissier.

All that the Alamo mines require is a fair trial and that the money put up be expended honestly in prospecting, and not in foolish routine outside the mines. Many of these properties can be bonded for a small amount of cash, an investigation thoroughly made, and in many cases money may be taken out almost directly, as has been done with the St. David.

#### MEXICO.

##### A Copper Mine.

Frank Nelson, the well known mining man of Matamores, is in the City of Mexico. He reports that the "La Amistad" mine has increased 200 per cent at a depth of 60 feet. All now needed is a little more development work as the samples of ore not only show a good yield of copper, but an unusual amount of gold and silver. Several large mining companies have this mine in view. It is thought that Matamores will develop into one of the leading copper mining districts in the republic and Mr. Nelson is being congratulated on his good fortune that has only been secured by hard work.—*Two Republics*.

Colonel Lloyd D. Waddell of New York City, representing a syndicate of heavy capitalists headed by Mr. Frederick J. Lancaster of No. 2 Wall street has just closed a deal by which there passes into their hands the absolute title to the justly noted gold properties, the Esparanza and Francisco mines, which are located in the Magdalena district of Sonora, about twenty-five miles southwest of the town of Imuris and are said to be two of the most promising gold mining propositions in all Sonora. Reports made, after careful and thorough investigation by those well known mining engineers, Ignacio Bonillas of Sonora, and John Farish of Colorado, state that the veins are true fissures, and that the properties are of great value.

The properties are well developed, having over 2,000 feet of shafts, tunnels, drifts and winzes, exposing to sight over 200,000 tons of high grade ore.

A twenty-stamp mill will be immediately erected upon the property; several carloads of machinery for the same are now at Nogales, Sonora, in transit, and transportation between Imuris and the mines has been engaged.

Like the Minas Prietas properties now world famous and the recent sale of which for millions has opened the eyes of the world to the mineral possibilities of Sonora, these mines, it is prophesied, will be bullion producers; and before the winter has well set in they will be pouring forth a stream of wealth of no mean magnitude.

Senor Tiburcio Garcia has recently sold to an American company the El Rosario mine, for the sum of \$125,000.

The Compania Metalurgica, of Aguas Calientes, is establishing an agency in Chihuahua for the purchase of all kinds of minerals.

Fifteen miles from Alamos, So., a rich mine of copper has been discovered whose ores assay an average of 30 per cent. copper, with some gold alloy. A company has been formed to work it.

Mining matters were active near Monterey last month. The San Antonio mine has been turning out from 5 to 15 cars a day, and development work has been done on both the Aztec and El Carmen.

The interest in the Murdoch tunnel project, similar to the great Sutro tunnel plan, has been revived at Pachuca. It is believed such a tunnel would prevent a repetition of the flood of last December, which was so disastrous to the community.

The San Pedro mine, near Monterey, doubled its output last month. This is said to be the only plant in Mexico operated by electricity. A cable road connects the mine with the railroad, and it costs less than 25 cents a ton to transport the ore from the mine to the cars.

There are in the chambers of the San Miguel quicksilver mine, in the Sierra de Encinillas, Camargo district, Chi., ores of more than average quality. There are near the mine two retorts, which can smelt 75 to 100 pounds a day, working only in the daytime and leaving the apparatus time to cool in the night.

A company has been organized in El Paso, with a capital of \$10,000, to work a mine in Chihuahua. It will be called the International Gold Mining Company. The following persons compose the directory: W. H. Scott, president; Thos. Grigsby, vice-president; W. H. N. Walson, secretary; Vance Green, treasurer; George Patterson, manager.—*Modern Mexico*.

The manager of the cinnabar mine Dulces Nombres, in Moctezuma, state of San Luis Potosi, has just sold the first products some 7,217 pounds, of quicksilver, to the famous Cinco Senores Company at the price of \$83 a quintal (100 pounds.) As the management of the Dulces Nombres mine has determined to form a reserve fund to carry on the mining operations and smelt the ore in European or American style, the amount of these sales will remain on deposit in the treasury of the Cinco Senores.—*Gaceta Minera*, (Chi.)

The part represented by Senores D. Pedro D. Francisco, D. Agustin Monteverde and D. G. Alfredo Villaseñor in the rich mine Las Amarillas, of the Prietas region, equal in all to 16 shares, was sold to the Senores Howell Hinds and Ramin Corral for \$33,333.33 American gold.

At El Plomo, in the Altar district, Sonora, the new mill of the National Mexican Mining and Developing Co. commenced operations on the 20th ult.. It has a daily capacity of thirty tons of ore, and consists of Cornish rolls, jigs, Huntington mills and Frue vaners. The product is a concentrate running from \$180 to \$300 per ton in gold.

#### NEW MEXICO.

Messrs. Christian and Litton made a new strike in their "Renegade" claim at Hematite.

The Percha mill at Hillsboro is supplied with plenty of ore from the "Wicks" mine.

The Golden Ajax mill on Willow creek, west side of Baldy, is taking out over \$100 worth of gold daily. Their ten-stamp mill will be increased to a twenty, in a few days.

The lessees on the "Little Mollic" mine, Cochiti district, are working into the rich vein of quartz which they recently encountered in that mine. It is not unlikely that a shipment will soon be made from this valuable property.

Messrs. Brookbanks and Barclay, of Pennsylvania, owners of the "Chance" group of valuable mines in the Hillsboro district, are having some work done on the "Anderson" mine in Wick's gulch, which also belongs to them.

An expert is on his way to the United States from England to make an examination of the "Good Hope Bonanza" mine near Hillsboro, Sierra county, N. M. A collection of ore from this mine won the first premium at the World's Columbian Exposition, as the finest gold ore there exhibited.

The Las Vegas-Raton mining company has begun to tunnel through Iron Mountain, at Hopewell, and will cut the vein to a depth of 175 feet. They seem to be justified in the expectation of striking it rich.

Word comes from the Hopewell mining district, Rio Arriba county, that F. G. Erb has recently sold one of his claims there for a handsome consideration.

There are now ten four-horse teams hauling ore daily from Cochiti to the railroad at Thornton, which is a greater number than that camp has seen in its history.

#### HERMOSA NOTES.

The principal mines of Hermosa are the Palomas Chief group. There are six leases and nine leasers on that property at present. Their last shipment was made in July. It was a very large shipment of high-grade ore, and was shipped to El Paso for treatment. William E. Taylor is superintendent and general manager.

Second in importance comes the Pelican group. George R. Bancus is manager and superintendent. There are four leases and six leasers on the Pelican. James M. Smith is jiggling Pelican second-class ore.

The Humming Bird is owned and superintended by Mr. Marshall. There are two leasers on the property taking out ore.

J. E. Wheeler, partial owner of the Argonaut mine, and son are working that property. Frank Reavis is working his mine about two miles below Hermosa. All of the mines named are good producers. Many important mines, those that in better times were good producers, are now lying idle, on account of the present low price of silver, but our people have great faith in our free silver workers, and believe that silver will be restored to its former price, hence, while temporarily crippled are hopeful.

#### LONE MOUNTAIN.

Howard and Bonner are working the old Somerset claim under lease. The mine is owned by Durkee and Howard. Good ore is being produced.

Jack Frost and two sons are working on the Homestake mine. They have an eight inch streak of high grade ore.

Frank Bisbee is working on the Monarch and taking out rich ore.



## PINOS ALTOS.

The Treasure Mining company has consummated the purchase of the Atlantic and Deep Down property. The purchase price of the St. Louis interests has been paid in full and a large installment paid upon the Wagner interest. J. H. Shockley has resigned as superintendent.

Nat Bell brought down 300 ounces of gold Monday from a short run on ore from the Bell and Stevens claim on the Pacific lode. The main working shaft, which is now 380 feet deep, is being retimbered and enlarged near the surface, preparatory to sinking. A new 800 foot cable has been put in, and every preparation is being made for deep working. —*Enterprise*.

## CARLISLE.

The Steeple Rock Development Company, is now employing over one hundred men, developing the various mines of which it is the owner. No effort has been made at shipment and none will be until the company builds large reduction works, which will be begun about the first of the year. All ore will be treated in camp, and then shipped according to grade. Shafts have been sunk on several of the claims and the properties are all in first-class working order. The work by the company represents that doing in camp, only a few miners conducting small operations on private claims.

## HANOVER.

The Southwestern Coal & Iron company, operating the large iron mines in this camp, have practically been compelled to suspend operations until the necessary repairs can be made to the roadbed of the Silver City and Northern Railroad to afford transportation facilities. Quite a number of men are out of employment in consequence. None of the other iron mines are being worked, although it is reported that the eastern capitalists who purchased the group about two years ago are likely to open up their properties this fall.

## SILVER CITY.

The Silver City Reduction Works have closed down to permit the placing of a new boiler and the repair of the oil boiler. The one boiler was not sufficient for the amount of ore they are smelting. The smelter will be blown in again as soon as the repairs are completed.

W. H. Newcomb is shipping on an average of twenty cars a week of iron ore to the El Paso and Pueblo smelters.

## COOK'S PEAK.

Al Schultz is still taking out ore from the Inez mine but is piling it up awaiting the election of Bryan.

Judge Sollenberger has a good thing but is confining his work principally to developing the property.

On account of the low price of lead, Wm. Kleff has taken one of his ore teams off the road.

## GAGE.

Charley Allen made a shipment of ore last week to the Deming Sampler and says, with the advance in price of silver, he has as good a thing as he wants. —*Headlight*.

M. M. McSchooler is showing his friends, in Las Vegas, a piece of ore fairly bristling with gold which he recently received from

John Pace, at Hopewell. He says it was taken from the "Jaw Bone" mine there and will assay \$75,000 to the ton. It looks remarkably similar to Cripple Creek ore.

Morgan Jolly, the representative of the Thurmond Mining company, who was in Hillsboro last week to inspect, expressed himself as well pleased with results thus far and assured Manager Thurmond that the necessary money would be forthcoming with which to prosecute developments.

A big strike of rich copper gold ore was made in the Butler mine by Collard and Wayland, lessees, early this week. The Butler is one of the Garfield group of mines, and is owned by W. H. Butler and Silas Alexander.

The shaft on the Solataire mine at White Oaks, is now down almost 250 feet and a drift to the ore body will be started from the bottom of the shaft in a few days.

## BLAND NOTES.

The Crown Point continues its shipments to the El Paso smelter.

George Hofheins, who owns a part and is doing the assessment work on the Posey, informs us that he has at last fixed the lead of that valuable property, which displays some fine specimens of brittle silver.

T. B. Ward is doing the assessment work this year on the Home owned by the gentleman mentioned and H. B. Cartwright, of Santa Fe. When the Home work is finished, it will make the eighth assessment work done by Mr. Ward this year.

Thos. Shields came in from Peralta last week and reports that Joe Either and Harry Wood have struck it rich in that canyon, somewhere in the neighborhood of the falls. The vein found is eight feet wide, in it a rich streak of solid mineral eight inches in width. This discovery will make the canyon mentioned the scene of considerable excitement. *Bland Herald*.

## HILLSBORO MINES OUTPUT.

Output of Hillsboro gold mines, for the week ending Thursday, September 10, 1896, as reported for *The Advocate*:

	Tons
Butler.....	50
Richmond.....	85
Happy Jack.....	20
Snake Group.....	80
Opportunity.....	35
Sherman.....	20
Prosper.....	45
Eighty-Five.....	60
Percha (silver-lead).....	15
Total.....	410

Total output since Jan. 1, 1896,—15,855.

The *Black Range* is authorized to say that the Cliff Mining & Smelting Company, with place of business at Chloride, has been organized with a capital of \$2,500,000 paid-up non-assessable stock. The officers of the company are: Daniel Braymer, president; Chas. F. Smith, vice-president; S. D. Felt, treasurer; Jno. Creighton, secretary; J. St. Clare Mack, manager. The company has purchased the old lixiviation plant, which will be refitted for a smelter. The smelter will be of 100-tons capacity, with blowing power for

four additional stacks. The machinery in detail for the plant has been purchased from the Pueblo Iron Works, and according to contract was to be on board of cars last Wednesday. The work of putting the old mill building in shape will commence immediately upon the arrival of President Braymer, who is now due here. At present we are not prepared to go into details further than to announce the assurance that we will soon have a smelter ready for business. Success to the enterprise is the unanimous expression of the people.

## GENERAL NEWS

## PATENTS.

Messrs. Hazard & Townsend, solicitors of patents, 9 Downey Block, Los Angeles Cal., report the following list of recent patents of interest to mining men.

Aug. 25, 1896, No. 566,607. Concentrator. R. H. McGowan, Denver, Colo.—A concentrator comprising a pan having its bottom composed of a series of amular steps descending toward a central outlet, each step having a flange or dam at its inner edge, and a rotary disk provided with depending agitators or teeth operating over the steps of the pan, in combination with a conical distributor and a feed hopper.

Aug. 25, No. 566,672. Machine for Crushing or Pulverizing Ores or Other Substances. R. H. Dundse and F. G. Jones, Cornwall, England. A rotary cylinder is provided with a hammer block pivotally secured upon a fixed stud projecting into the cylinder, and deflectors are arranged to direct the crushed material against a screen, and to also direct the insufficiently crushed material beneath the hammer block.

Aug. 25, Nos. 566,533 and 566,534. Ore Washer and Separator. Two patents, issued to Charles F. Pike, Philadelphia, Penn.—Suitable riffle plates are arranged to oscillate or shake while submerged in water contained in a suitable vessel. The tailings are removed from the vessel by means of an elevator.

Sept. 1, 1896. No. 566,834. Concentrator. R. D. Woodward and W. C. Brown, Leadville, Colo.—In Combination with suitable sieves, a pan loosely suspended from a rock shaft and adapted to swing upon such shaft; agitator knives are carried by the shaft and project into the pan to agitate the material as the pan is swung.

Sept. 1, No. 566,894. Apparatus for Extracting Gold and Silver from Ore. Paul Danckwardt, N. Y.—Assignor to the Electro Cyanide Gold and Silver Extracting Company, same place. The combination of a revolving barrel having an amalgamated copper lining to form a negative pole, with a pair of heads with a series of insulated inclined plates secured to such heads and having overlapping edges to form the positive pole.

Sept. 1, No. 566,921. Apparatus for Separating Metals. J. A. Mays, London, England.—A centrifugal machine for separating silver and other metals from molten argentiferous lead, comprising the combination of a revolvable vessel, a molten menstrum carried thereby, means for feeding the material to the vessel in such relation to the menstrum as to be forced there through by centrifugal force, and an education passage through which the purified lead passes out.



We have received the official call and programme for the Fifth National Irrigation Congress, which is to convene in the city of Phoenix, Arizona, December 15, 16, and 17, 1896. The National Executive Committee and the people of Phoenix have united in an endeavor to make this congress memorable in the history of irrigation and the movement looking to the reclamation of vast areas suitable for agriculture in the Western States and Territories.

The National Irrigation Congress has already done much, not only for the people of the arid and semi-arid west, but for all the American people, by bringing before them the most approved and economical methods of applying water to soils; much also has been done by this body in the way of recommending useful and needed legislation, both state and national, in the interest and settlement of lands once supposed to be barren and unworthy of cultivation, but which, under artificial watering, prove to be among the most productive on the earth. As the delegates are annually appointed by the Governors, Chambers of Commerce, Universities, Agricultural Associations and Canal Companies, they come fresh from the people, full of new ideas, and as the executive committee have limited the time of addresses to fifteen minutes, this session will be live, snappy and up to date. The programme has been prepared with great care, and upon it will be found the names of some of the most eminent men in the United States.

Phoenix is a city of about 12,000 inhabitants, has modern hotels, and all the conveniences of an eastern city of twice its size, and the winter climate there is mild.

The local committee have arranged free transportation for side trips after the conclusion of the Congress.

The railroads have named a rate not to exceed one fare for the round trip from Chicago and all points west.

JAMES McMILLAN, WALTER TALBOT,  
Sec. Local Com'tee. Pres. Local Com'tee.

## PERSONAL-NEWS ITEMS

J. H. Shockley, ex-Superintendent of the Treasure Mining Company's properties at Pinos Altos, N. M., has left Silver City for Colorado, where he intends to remain.

That popular young mining man, James G. Clark, Jr., has shown his devotion to the cause of free silver by becoming the father of a bouncing boy. Mr. Clark says that the youngster was born on Admission Day and had a picture of Bryan in one hand and a free silver button in the other. Mr. Clark has left for the La Fortuna Mine, southeast of Yuma, as helper to the amalgamator.

Supt. Thos. L. Bailey, of the Mammoth Mine at Mammoth, was in Tucson Sept. 5th, on business connected with the mines.

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Senor E. A. Zuintard has gone to Cieneguita, municipality of Urigue, in company with Don Augustin Becerra to inspect the gold mines at that point in the interest of A. R. Shepherd.

C. A. Randall of Big Bug, Arizona, was in Prescott the first of this month from his mining camp near Big Bug.

W. P. Gibson has just returned from the Pinon Mountains where he has been prospecting.

Syd Kempton, a well known mining man of Phoenix, having for a time operated the Vulture Mine, returned to Phoenix the first of September from Sonora, where he has been the past three months.

Geo. B. Scammell left Prescott, Ariz., for Cherry Creek near Jerome, Ariz., Sept. 1st, where he expects to remain a month.

Thomas A. Gannon, of Fenner Station, San Bernardino Co., was a caller at the JOURNAL office the 4th inst. Mr. Gannon reports the weather rather warm out on the desert.

C. H. Curtis, superintendent of the S.C. & N.R.R. and Arizona and New Mexico Smelter at Hanover, N. M., passed through Silver City the 1st inst, en route to Socorro, N. M., to look after the interests of the Socorro Fire Clay Company, of which he is the manager.

W. E. Bayless, a young gentleman formerly connected with the Commercial Mining Co. of Prescott, but more recently engaged in the banking business at Washington, Kansas, arrived in Prescott, Arizona, Sept. 1, with a view of locating in that section again.

R. Decker, of Panamint, Calif., was a caller at the JOURNAL office the 2d inst. Mr. Decker reports everything progressing rapidly in the Panamint country.

Wm. Kief, the bonanza king of Cooks Peak, N.M. was in Silver City, N. M., several days during the past week.

I. T. Stoddard left Prescott, Arizona, the 1st inst. for his mining camp near Prescott.

J. D. Thompson of Pasadena, who has the mines at Castle Dome, Arizona, about 65 miles north of Yuma, was a caller at the JOURNAL office Sept. 3d.

Alyah Mason, the old time Pinos Altos, N. M., miner, was a welcome visitor in Silver City Sept. 2d.

Governor Carrol of Sonora has just returned from a trip to the Minas Prietas where he went on important mining business.

P. D. Barnhart, one of the enterprising firm of assayers at Prescott, Arizona, who has been in Denver Col., some time past, has returned to Prescott.

Geo. E. Robin, owner of the Opportunity mine at Hillsboro, N. M., returned to the mine from the Territorial National Democratic Convention, Sept. 2d.

J. Gordon Hardy, a mining expert who has been in Chihuahua, Mexico, for some days, left for Sierra Madre the first of the month.

N. C. Shekels and his son, Harry, of the Crowned King Mining Co., left Prescott, Arizona, for Los Angeles, September 5th.

Otto Tiesch, one of the most steady and industrious young men ever reared in Socorro, N. M., has position in one of the El Paso smelters.

E. W. Tucker of the Edward P. Allis Machinery Co., of Milwaukee, Wis., arrived in the City of Mexico September 1st.

Sheriff Johnson and Recorder Gruwell, of Riverside, left that city Sept. 10th for a visit to the mines on the desert beyond the San Jacinto mountains. They expect to be gone several days.

Geo. W. Sines, of Cherry Creek, near Jerome, part owner of the Sines-Smith Mill, was in Prescott, Arizona, September 2d.

Alex. Bentley, the mining man of Hermosa, N. M. was in Hillsboro, N. M., the fore part of September.

L. P. Feustman, representative of the Consolidated Kansas City Smelting and Refining Co. of Argentine, Kansas, is in the City of Mexico.

Max Cantin, an industrious miner from Lynx Creek, was a visitor at Prescott the first part of this month.

Wake Williams left Socorro, N. M., the first part of the month for Golden, Col., to attend the school of mines at that place.

Don Vicente Parrara, general manager of the Compania Minera Fundidora y Aguadora de Monterey has been on a visit to his mines—The Santa Elena—at Ocampo, Coahuila. He has large mining interests in Nuevo Leon, Coahuila, Durango and other states.

J. E. Saint left Prescott, Arizona, the first of the month for Bill Williams Fork to make a survey for a dam site to be used in connection with a placer mining enterprise.

W. T. Climo, the efficient foreman of The Treasure Mining Company at Pinos Altos, N. M., was in Silver City the last of August.

Joseph Chiado, the superintendent of Santa Elena mines at Ocampo, State of Coahuila, is in Monterey State of Nuevo Leon, on business, and will be back at the mines very soon. During his absence the mines will be under the direction of John P. Mason, the assayer and engineer of the company. Both these gentlemen have been in the employ of the company for many years.

Paul Johns, foreman of the Crowned King property, was brought into Prescott, Arizona, the last of last month, sick. His condition has improved considerably since his arrival there.

Charles Siringo has just left Santa Fe for Bland, N. M., where he will work the Good Hope and Hope-well mines to the fullest capacity.

W. A. Burr, a mining and civil engineer, returned the last of August to Ensenada from Mexican Gulch, where he has been doing some engineering work for the Viznaga company at that place.

F. W. Thompson, a mining man of Los Angeles, is at present in Phoenix, Arizona, on business.

W. E. Dame, who has charge of the Cash Entry mining property at Cerrillos, N. M., has just returned to Cerrillos from Santa Fe.

Anthony Godbe of Ensenada, Lower California, is in San Diego, Cal., on business.

Elmo Pyle returned Sept. 9th to the desert bonanzas, having come into Bakersfield, Cal., for supplies.

P. A. Craigie came in from Eureka Mining District to Prescott, Arizona, Sept. 4th.

Charles Engen, mine surveyor for the coal company at Starkville, N. M., has changed his residence to Blossburg, N. M., which place he intends to make his permanent headquarters.

John Whyte, a mining engineer and expert of some note, who was in Globe, Arizona, for several weeks to examine and report upon the Black Copper group of mines, left the 3d of Sept. for Denver, Col.

Reuben Wilkinson, a stockholder of the Crowned King mine, arrived in Prescott, Arizona, from Taylorville, Ill., September 4th.

Lee F. Cowan, Secretary and Treasurer of the Golden Giant Mining Company of Pinos Altos, N. M. was in Silver City September 3d.

John T. Graham, of Denver, Treasurer of the Helen Mining Company at Mogollon, N. M., passed through Silver City en route from Mogollon to his Colorado home the last of August.

## WANTED

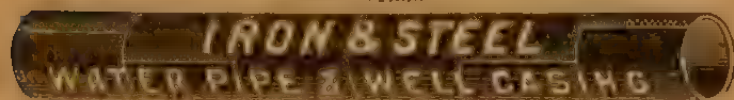
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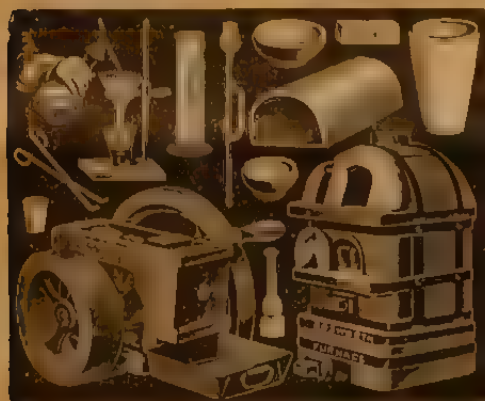
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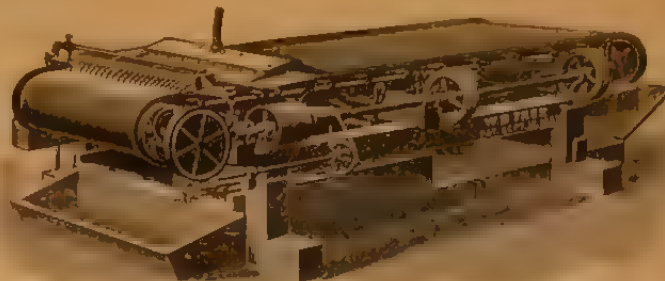
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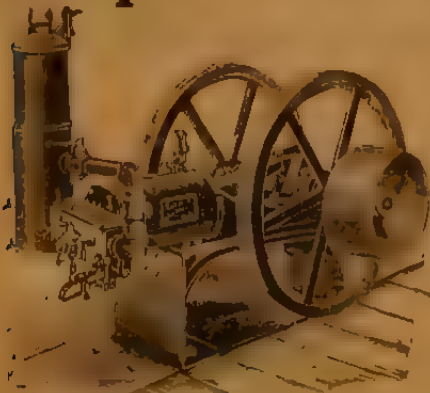
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Water Pump, capacity 1800 gallons per minute, new with  
Primer. 1 Flat Car and Rotary Screen with automatic ore  
feeder. For price and particulars addressJ. R. T. JOURNAL OFFICE, Stinson Block,  
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## METAL MARKET.

New York Quotations:

	SILVER.	COPPER.	LEAD.
Sept. 1	100 1/2	10 65	2 50
" 2	100 1/2	10 65	2 50
" 3	100 1/2	10 65	2 50
" 4	100 1/2	10 65	2 50
" 5	100 1/2	10 65	2 50
" 6	100 1/2	10 65	2 50
" 7	100 1/2	10 65	2 50
" 8	100 1/2	10 65	2 50
" 9	100 1/2	10 65	2 50
" 10	100 1/2	10 65	2 50
" 11	100 1/2	10 65	2 50
" 12	100 1/2	10 65	2 50
" 13	100 1/2	10 65	2 50
" 14	100 1/2	10 65	2 50
" 15	100 1/2	10 65	2 50
" 16	100 1/2	10 65	2 50

## MINING STOCK QUOTATIONS.

Altona	80	Franklin	10 00
Atlantic	10 00	Kearns	10 00
Boston & Mont's	75 00	Orcella	25 00
Battle & Boston	1 00	Quincy	100 00
Cal & Helca	300 00	Tamarack	75 00
Centennial	2 00	Wolverine	5 00

## COLORADO SPRINGS STOCKS

Anaconda	80	Mollie Gibson	55
Blue Bell	05	Mato	11
Colfax	05	Mount Rosa	12
Columbine	02 1/2	Ophir	07
Fanny Rawlins	05	Orphan Bell	13
Gold King	55	Pharmacist	10
Gold and Globe	22	Portland	1 45
Isabella	64	Work	02
Jack Pot	04	World	02
Jefferson	19	Del Monte	03 1/2

## DENVER STOCK REPORT

Alamo	03	Anaconda	55
Bangkok	05	Aola	05
Bankers	10	Big Six	10
Coeas	05	Boston & Id	17
C. C. Con	12	Calfax	00
Gold King	03	Gold & Globe	17
C. & C. C.	04	Mollie Gibson	50
Golden Fleece	85	Mt. Rosa	12
Gold Standard	04	Pharmacist	10
Isabella	54	Union Gold	30

## HELENA, MONTANA

Alice	25	Granite Mount	1 05
Bald Butte	2 55	Hope	1 00
Benton Group	10	Iron Mountain	42
Bi Metallic	2 00	Ontario	1 00
Elizabeth	10	Peerman	40

## NEW YORK

Crown Point	45	Sierra Nevada	85
Con. Cal. & Va.	1 00	Standard	1 75
Gould & Curry	00	Union Con	63
Hale & Norcross	1 25	Iron Silver	10
Homestake	80 50	Quicksilver	1 00
Mexican	50	Quicksilver pfd	17 02
Ontario	14 50	Reilver	35
Ophir	10	Yellow Jacket	35
Plymouth	20	Deadwood	45

## SAN FRANCISCO.

Alta	10	Mono	15
Belcher	37	Nevada Queen	05
Best & Belcher	00	Ophir	05
Bodie Con	55	Potosi	05
Chollar	2 25	Savage	75
Con. Cal. & Va	1 30	Sierra Nevada	83
Crown Point	45	Union Con	45
Hale & Norcross	1 25	Utah	11
Mexican	55	Yellow Jacket	45
Gould & Curry	65	Reilver	35

## ST. LOUIS.

American Nettle	25	Elizabeth	35
Granite Mt.	1 50	Leo	3
Adams	00	Hope	1 40
Bi metallic	2 30	Small Hopes	00

## SALT LAKE CITY

Ajax	65	Foreks Hill	120 00
Alance	30	Horn Silver	2 05
Am. Nat. G's	02	Little Pittsburg	02
Anchor	1 25	Lucky Hill	25
Appex	07	Mammoth	3 05
Boggs	20	Meersa	60
Bull. Beck	0 70	Mercur	7 10
Cano Springs	80	New Tintic	2 00
Cent. Eureka	75 00	Niagara	2 25
Clews. Con.	45	No. Eureka	05
Comstock	15	North Spy	2 40
Crescent	04	Ontario	12 00
Dalton	04	Silver King	17 25
Daly	7 50	Silver Spar	1 00
Daly West	3 70	Tetro	02
Elko	30	Utah	1 05

## MEXICO

Name of Company	State	Price
Anguillas	Guerrero	\$ 400
Antuniana y Anexas	Zacatecas	440
Cerro Colorado	Chihuahua	10
Concepcion y Anexas	S. Luis Potosi	100
do pre.	Guerrero	100
Luz de Borda	Michoacan	30
do pre stock	"	30
Luz de Maravillas	Hidalgo	110
Real del Monte	"	850
Rosario y Anexas	Durango	70
do pre	"	50
San Rafael del Oro	Guerrero	80
Sta. Gertr. y Anexas	Hidalgo	167
Sta. Gertr. y Anexas	"	50
Sta. Gertr. y Anexas	S. Luis Potosi	50
Tlaxiingo	Puebla	800
Zomelahuacan (gold)	Vera Cruz	01
Zomelahuacan (silver)	"	5

Note—The above Mexican stocks are figured  
on the basis of Mexican silver







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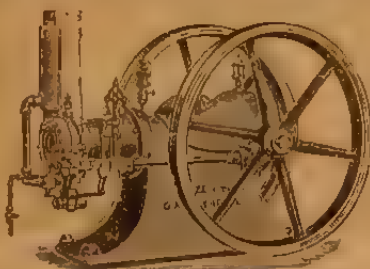
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NOISELESS  
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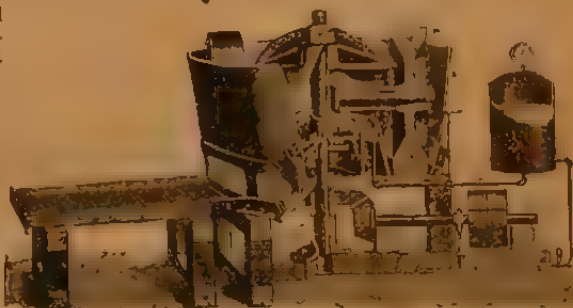
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## HYDRAULIC \* QUARTZ \* MILL.

The only Mill in the world for reducing hard and tough ores cheaply, either wet or dry. Guaranteed superior to Stamps; less power required, very much less wear and tear, and a much higher per cent. of gold saved. Other so-called Quartz Mills are positively "not in it."



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## STAMP MILLS — CONCENTRATORS

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## MINING MACHINERY



**Wire Rope Tramways** with Automatic Loading Apparatus permitting the ore bins to be permanently open.

Specialty made of the Improved, Iron Frame Self-Contained Stamp Mill, the greatest success of the day in reduction of ore to pulp. A great boon to mill builders in countries where timber is plenty and therefore a greater boon to those who have no timber from which to draw the huge pieces needed in old style mills. We claim for this mill:

- 1st. It is no longer a new thing, but well tried and its durability proven.
- 2d. Cheaper than the Wooden Frame Mill when ready to run.
- 3d. Saves a great amount of delay in erection and it can be set up in as short a time as a self contained engine.
- 4th. Saves much space.

**We call the attention of Prospectors to our Self Contained Two Stamp Mill.**

We have inaugurated a system of amalgamation and Concentration which renders both much more satisfactory and cheapens the cost of concentration by a great saving in the repairs to the complicated machinery now used.

Parties intending erecting mining plants would do well to investigate our mills. We build any mill desired and will deliver F. O. B. Steamer or cars at San Francisco, California.

We are prepared to furnish parties desiring small plants in localities where fuel is extremely expensive, with mills coupled up and ready to run with gaso-

line engines, guaranteeing the efficiency of both engine and mill.

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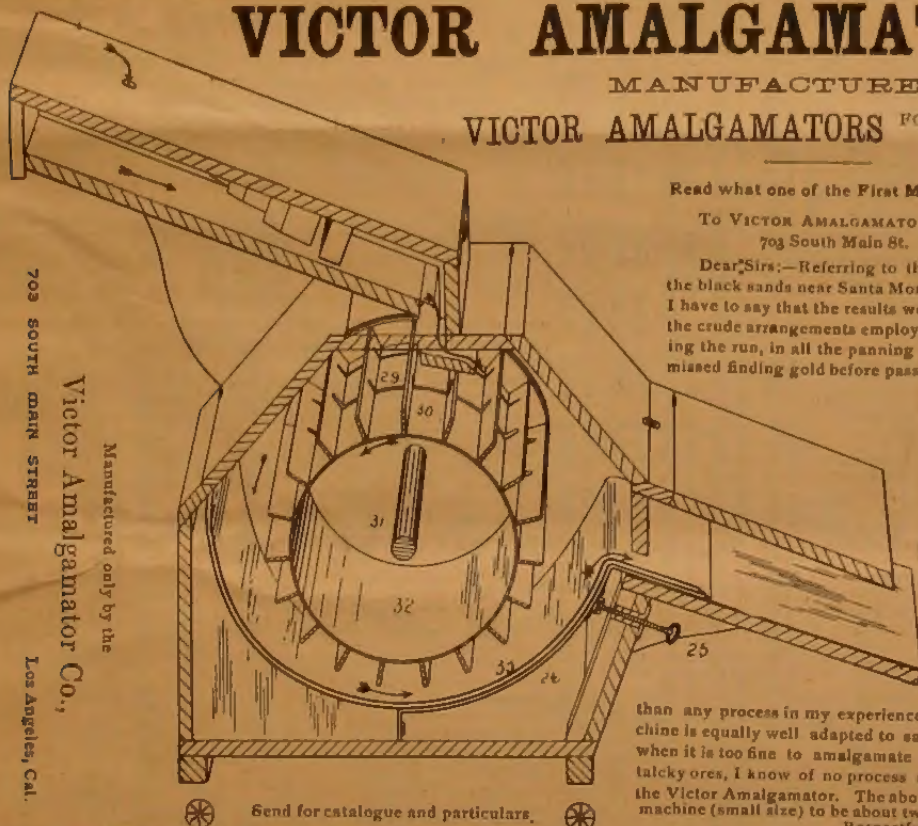
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MANUFACTURERS OF

### VICTOR AMALGAMATORS FOR MILL OR PLACER USE.



Read what one of the First Mill Men in the County Says of it

To VICTOR AMALGAMATOR CO  
703 South Main St. Los Angeles, Cal., May 30, 1896

Dear Sirs:—Referring to the run made by me of fifty tons of the black sands near Santa Monica with the Victor Amalgamator I have to say that the results were quite satisfactory, considering the crude arrangements employed in feeding the machine. During the run, in all the panning (of over one hundred) I never missed finding gold before passing through the machine, and after passing the machine, I found only two colors in panning after going through; In other words, only two colors were found in the tailings after panning over 120 pans. Of the many methods that have been tried for saving the gold from the sea-sands on this coast for the last twenty-five years, none have given as satisfactory results as the Victor. I have no hesitation in saying that the machine properly handled, will save a larger per centage of gold contained in sea-sands

than any process in my experience of over thirty years. The machine is equally well adapted to saving the gold from mill tailings when it is too fine to amalgamate on ordinary plates. In milling talcky ores, I know of no process so well adapted to saving gold as the Victor Amalgamator. The above run showed the capacity of the machine (small size) to be about twenty-five tons per day.

Respectfully, GEO. O. KILBOURNE.

Send for catalogue and particulars.

703 SOUTH MAIN STREET  
Victor Amalgamator Co.,  
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Established in Colorado, 1866. Samples by mail or express will receive prompt and careful attention. Gold and Silver Bullion refined, melted and assayed, or purchased.

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## All Kinds of Mining, Smelting and Milling Machinery, LOS ANGELES, CAL.



## ORE TARIFF.

From Points in Mexico, New Mexico, Texas and Arizona, to  
El Paso, Pueblo, Denver and Kansas City.

## ATCHISON, TOPEKA &amp; SANTA FE R. R.

FROM	TO	Car Loads, in dollars and cents per ton of 2,000 lbs.			
		Ore & Concentrates.	Lead Bullion, valuation not to exceed \$500 per ton.	Base Metal, Copper Matte, Bar and Black Copper, valuation not to exceed \$300 per ton.	
		Valuation not to exceed \$50 per ton.	Valuation not to exceed \$100 per ton.	Valuation not to exceed \$300 per ton.	
<b>SONORA RAILWAY</b>					
Guyamas, Mex.	El Paso	10 00	11 50	13 50	
	Pueblo	13 50	15 00	17 00	
	Denver	15 00	16 50	18 50	
	Kansas City	15 50	17 00	19 00	
Ortiz, "	El Paso	8 50	11 00	13 00	
	Pueblo	12 50	14 00	16 00	
	Denver	14 00	15 50	17 50	
	Kansas City	14 50	16 00	18 00	
Torres, "	El Paso	8 00	10 50	12 50	
	Pueblo	11 50	13 00	15 00	
	Denver	13 00	14 00	16 50	
	Kansas City	13 50	14 50	17 00	
Hermosillo, "	El Paso	8 50	10 00	12 00	
	Pueblo	10 00	11 50	13 50	
	Denver	11 50	13 00	15 00	
	Kansas City	12 00	13 50	15 50	
Perqueira, "	El Paso	8 00	9 50	11 50	
	Pueblo	10 00	11 50	13 50	
	Denver	11 50	13 00	15 00	
	Kansas City	12 00	13 50	15 00	
Querohabi, "	El Paso	7 00	8 50	10 50	
	Pueblo	10 00	11 50	13 50	
	Denver	11 50	13 00	15 00	
	Kansas City	11 50	13 00	15 00	
Santa Ana, "	El Paso	6 50	8 00	10 00	
	Pueblo	9 50	11 00	13 00	
	Denver	11 00	12 50	14 50	
	Kansas City	11 50	13 00	15 00	
Magdalena, "	El Paso	6 00	7 50	9 50	
	Pueblo	9 00	10 50	12 50	
	Denver	10 50	12 00	14 50	
	Kansas City	11 00	12 50	14 50	
Imuris, "	El Paso	6 00	7 50	9 50	
	Pueblo	9 00	10 50	12 50	
	Denver	10 50	12 00	14 50	
	Kansas City	11 00	12 50	14 50	
<b>NEW MEXICO &amp; ARIZONA R. R.</b>					
Nogales, A. T.	El Paso	5 50	6 50	8 50	
	Pueblo	9 00	10 50	12 50	18 80
	Denver	10 50	12 00	14 00	17 80
	Kansas City	11 00	12 50	14 50	18 40
Calabasas, "	El Paso	5 50	6 50	8 50	
	Pueblo	9 00	10 50	12 50	18 40
	Denver	10 50	12 00	14 00	17 80
	Kansas City	11 00	12 50	14 50	18 20
Sanford, "	El Paso	5 50	6 50	8 50	
	Pueblo	9 00	10 50	12 50	18 40
	Denver	10 50	12 00	14 00	17 80
	Kansas City	11 00	12 50	14 50	18 20
Crittenden, "	El Paso	4 70	5 70	7 70	
	Pueblo	8 00	9 50	11 50	16 00
	Denver	9 50	11 00	13 00	18 00
	Kansas City	10 00	11 50	13 50	20 00
Pairbank, "	El Paso	4 40	4 40	6 50	
	Pueblo	8 00	9 50	11 50	16 00
	Denver	9 50	11 00	13 00	18 00
	Kansas City	10 00	11 50	13 50	20 40
<b>SOUTHERN PACIFIC CO.</b>					
Tucson, "	El Paso	4 35	10 50	12 50	16 60
	Pueblo	9 00	10 50	12 50	16 60
	Denver	10 50	12 00	14 00	17 80
	Kansas City	11 00	12 50	14 50	20 80
Benson, "	El Paso	8 00	10 00	12 00	16 00
	Pueblo	9 50	11 50	13 50	17 00
	Denver	10 00	12 00	14 00	17 20
	Kansas City	10 50	12 50	14 50	20 15
Steins Pass, N.M.	El Paso	8 00	9 50	11 50	16 00
	Pueblo	9 50	11 00	13 00	18 00
	Denver	10 50	12 00	14 00	18 20
	Kansas City	11 00	12 50	14 50	18 70
Lordsburg, "	El Paso	7 50	9 00	11 00	16 00
	Pueblo	9 00	10 50	12 50	18 00
	Denver	10 50	12 00	14 00	18 40
	Kansas City	11 00	12 50	14 50	18 70
<b>S. C. D. &amp; P. R. R.</b>					
Silver City, "	El Paso	2 50	3 20	4 70	
	Pueblo	6 50	8 00	10 00	12 20
	Denver	8 00	9 50	11 50	13 20
	Kansas City	8 50	10 00	12 00	13 80
Hudson, "	El Paso	2 40	3 00	4 50	
	Pueblo	6 50	8 00	10 00	12 20
	Denver	8 00	9 50	11 50	13 20
	Kansas City	8 50	10 00	12 00	13 80
Deming, "	El Paso	2 20	2 80	3 80	
	Pueblo	6 00	7 50	9 50	11 80
	Denver	7 50	9 00	11 00	12 80
	Kansas City	8 00	9 50	11 50	13 40
Florida and Lake Valley, "	El Paso	2 20	2 80	3 80	
	Pueblo	6 00	7 50	9 50	11 80
	Denver	7 50	9 00	11 00	12 80
	Kansas City	8 00	9 50	11 50	13 40
Nutt, "	El Paso	2 20	2 80	3 80	
	Pueblo	6 00	7 50	9 50	11 80
	Denver	7 50	9 00	11 00	12 80
	Kansas City	8 00	9 50	11 50	13 40
El Paso, "	El Paso	8 00	7 50	9 50	11 80
	Denver	7 50	9 00	11 00	12 80
	Kansas City	8 00	9 50	11 50	13 40
Las Cruces, "	El Paso	1 50	2 00	3 00	
	Pueblo	6 00	7 50	9 50	11 80
	Denver	7 50	9 00	11 00	12 80
	Kansas City	8 00	9 50	11 50	13 40
Rincon, "	El Paso	2 00	2 00	3 00	
	Pueblo	6 50	7 00	9 00	11 40
	Denver	7 00	8 50	10 50	12 40
	Kansas City	7 00	9 00	11 00	13 00

FROM

TO

A. T. &amp; S. F. R. R.

ATLANTIC &amp; PACIFIC RAILROAD

A. T. &amp; S. F. R. R.

FROM	TO	Car Loads, in dollars and cents per ton of 2,000 lbs.			
		Ore & Concentrates.	Lead Bullion, valuation not to exceed \$500 per ton.	Base Metal, Copper Matte, Bar and Black Copper, valuation not to exceed \$300 per ton.	
		Valuation not to exceed \$50 per ton.	Valuation not to exceed \$100 per ton.	Valuation not to exceed \$300 per ton.	
<b>By the Railroad Company, at owner's expense, will govern the value and determine the rate.</b>					
<b>Agents must cause shippers to understand the condition upon which these rates are based, and should make their receipts read:</b>					
<b>"Rates subject to correction according to value at destination."</b>					
<b>These rates only apply on lots of ten tons or over. On lots of four tons and under ten, 20 per cent, and on lots of one ton and less than four, 40 per cent will be added to above rates. Base Metal, Copper Matte and Ore Concentrations, in lots of less than one ton, will take first-class rates from all the above points, except when the rate based on valuation makes it higher, that rates on small lots of high value may not be less than the rates when in lots of one ton or over as above.</b>					
<b>Charges on Ore in car loads must be guaranteed, and on lots less than a car-load must in all cases be prepaid.</b>					
<b>Omaha Rates.—The Rates to Omaha, Neb., all grades, will be \$1 per ton higher than the rates to Kansas City.</b>					
<b>Note.—All shipments of Ore and Concentrations valued not to exceed \$50 per ton must be billed at the rate for Ore and Concentrations, "Valuation over \$50 not to exceed \$100 per ton," and shipping receipt must be issued by agent at said rate. Agent at destination is authorized to correct to rate for Ore and Concentrations, "Valuation not to exceed \$50 per ton," upon presentation of properly certified smelter returns, showing that the value does not exceed \$50 per ton.</b>					
<b>Intermediate points not named will take rates provided for next station beyond.</b>					
<b>SOUTHERN CALIFORNIA RAILWAY.</b>					
<b>Rate on Ore in car loads, valuation not to exceed \$50 per ton, minimum weight 24,000 lbs. Oro Grande, Cal., to Pueblo, Col., \$10.30 per ton.</b>					
<b>Same, Victor, Cal., to Pueblo, \$10.35 per ton.</b>					
<b>Ore, car loads, when coming from the Republic of Mexico valuation not to exceed \$50 per ton; San Diego or National City to Denver, Col., and Pueblo, Col., \$12 per ton of 2,000 lbs.</b>					
<b>Ore, valuation not to exceed \$100 per net ton and so receipted for, minimum weight 30,000 lbs. 75c per 100 lbs. to Denver and Pueblo, Col., from all points on the Southern California Railway.</b>					
<b>ORE TARIFF.</b>					
<b>From Points in New Mexico, Arizona and California, to El Paso, San Francisco and Vallejo Junction.</b>					
<b>SOUTHERN PACIFIC R. R. COMPANY.</b>					
FROM	TO	Valuation not to exceed \$5 per ton.	Valuation not to exceed \$50 per ton.	Valuation not to exceed \$100 per ton.	Valuation not to exceed \$500 per ton.
El Paso, Tex.	San Francisco	7 00	9 10	9 10	11 20
Deming, N.M.	El Paso	2 00	2 00	3 30	3 30
	San Francisco	7 00	10 40	12 00	18 20
Gage, "	El Paso	2 00	2 00	3 30	3 30
	San Francisco	7 00	10 20	12 00	18 00
Separ, "	El Paso	2 50	2 50	3 00	3 80
	San Francisco	7 00	10 20	12 00	17 80
Lordsburg, "	El Paso	3 50	3 00	3 00	4 40
	San Francisco	7 00	10 00	12 40	17 40
Steins Pass, "	El Paso	2 50	3 20	3 20	5 00
	San Francisco	7 00	9 80	12 20	17 00
Bowie, A. T.	El Paso	3 00	3 60	3 60	5 60
	San Francisco	7 00	9 40	11 20	16 50
Willcox, "	El Paso	3 00	4 00	4 00	5 00
	San Francisco	7 00	9 20	11 00	15 20
Dragoon Summit, "	El Paso	3 00	4 20	4 20	5 20
	San Francisco	7 00	9 20	11 40	16 00
Benson, "	El Paso	3 50	4 25	4 25	5 20
	San Francisco	7 00	9 00	11 00	15 00
Tucson, "	El Paso	3 50	4 25	5 20	8 60
	San Francisco	7 00	8 80	10 60	15 00
Casa Grande, "	El Paso	4 00	5 00	6 00	7 60
	San Francisco	7 00	8 00	9 00	10 40
Maricopa, "	El Paso	6 40	6 40	8 40	9 00
	San Francisco	7 00	7 80	9 80	13 80
Gila Bend, "	El Paso	6 70	6 70	8 40	11 35
	San Francisco	7 00	7 40	9 20	13 00
Aztec, "	El Paso	7 05	7 05	8 35	12 00
	San Francisco	7 00	7 00	8 30	12 40
Gila City, "	El Paso	7 55	7 55	8 55	12 45
	San Francisco	6 60	6 60	8 20	11 40
Yuma, "	El Paso	6 00	6 00	8 00	13 05
	San Francisco	6 00	6 00	8 00	11 20
Newhall, Cal.	San Francisco	6 00	6 00	8 00	11 20
Mojave, "	San Francisco	3 85	3 85	4 80	5 00
Caliente, "	San Francisco	3 80	3 80	4 80	5 00
Milton, "	San Francisco	2 10	2 10	2 05	2 05
Hollister, "	San Francisco	2 50	2 50	2 50	2 50

## Rates on Copper or Zinc Ore to Canon City.

Taking Effect July 1st, 1891.—So far as rates on Copper or Zinc Ores are concerned, Canon City, Col., will be considered as common with Pueblo; in other words the rates shown in Tariff as applying on shipments of Ore to Pueblo, will also apply on shipments of Copper or Zinc Ore to Canon City.

In the absence of positive information as to the value of Ore, Ore Concentrations, or Base Metal, Agents will bill at rates sufficiently high to protect the Company. These rates can be corrected when evidence of actual value is produced.

The market price at destination, to be verified by assays made

by the Railroad Company, at owner's expense, will govern the value and determine the rate.

Agents must cause shippers to understand the condition upon which these rates are based, and should make their receipts read:

"Rates subject to correction according to value at destination."

These rates only apply on lots of ten tons or over. On lots of four tons and under ten, 20 per cent, and on lots of one ton and less than four, 40 per cent will be added to above rates. Base Metal, Copper Matte and Ore Concentrations, in lots of less than one ton, will take first-class rates from all the above points, except when the rate based on valuation makes it higher, that rates on small lots of high value may not be less than the rates when in lots of one ton or over as above.

Charges on Ore in car loads must be guaranteed, and on lots less than a car-load must in all cases be prepaid.

Omaha Rates.—The Rates to Omaha, Neb., all grades, will be \$1 per ton higher than the rates to Kansas City.

Note.—All shipments of Ore and Concentrations valued not to exceed \$50 per ton must be billed at the rate for Ore and Concentrations, "Valuation over \$50 not to exceed \$100 per ton," and shipping receipt must be issued by agent at said rate. Agent at destination is authorized to correct to rate for Ore and Concentrations, "Valuation not to exceed \$50 per ton," upon presentation of properly certified smelter returns, showing that the value does not exceed \$50 per ton.

Intermediate points not named will take rates provided for next station beyond.

## SOUTHERN CALIFORNIA RAILWAY.

Rate on Ore in car loads, valuation not to exceed \$50 per ton, minimum weight 24,000 lbs. Oro Grande, Cal., to Pueblo, Col., \$10.30 per ton.

Same, Victor, Cal., to Pueblo, \$10.35 per ton.

Ore, car loads, when coming from the Republic of Mexico valuation not to exceed \$50 per ton; San Diego or National City to Denver, Col., and Pueblo, Col., \$12 per ton of 2,000 lbs.

Ore, valuation not to exceed \$100 per net ton and so receipted for, minimum weight 30,000 lbs. 75c per 100 lbs. to Denver and Pueblo, Col., from all points on the Southern California Railway.

## ORE TARIFF.

From Points in New Mexico, Arizona and California, to El Paso, San Francisco and Vallejo Junction.

## SOUTHERN PACIFIC R. R. COMPANY.

FROM	TO	Valuation not to exceed \$5 per ton.	Valuation not to exceed \$50 per ton.	Valuation not to exceed \$100 per ton.	Valuation not to exceed \$500 per ton.
El Paso, Tex.	San Francisco	7 00	9 10	9 10	11 20
Deming, N.M.	El Paso	2 00	2 00	3 30	3 30
	San Francisco	7 00	10 40	12 00	18 20
Gage, "	El Paso	2 00	2 00	3 30	3 30
	San Francisco	7 00	10 20	12 00	18 00



# THE PUEBLO Smelting and Refining Company,

PUEBLO, COLORADO.

BUYERS OF

Gold, Silver, Lead and Copper Ores,  
Copper Matte and Bullion.

## Refiners of Gold, Silver, Lead and Copper.

Manufacturers of Bar and Pig Lead, Lead Pipe, Antimonial Lead, Copper Ingots,  
Granulated Test Leads and Litharge.

Pays Highest Prices for all classes of Ores.

Especial Attention to Sampling by most Approved Processes.

Quick Returns on all Consignments.

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THE KENDALL PROCESS is the most efficient method of using cyanide for the extraction of precious metals from their ores: wherever the process has been adopted the result has been increased, percentages of values recovered and saving of time; material reduction in consumption of chemical has also been demonstrated with respect to several classes of ores.

All ores, without exception, amenable to cyanide treatment, can be treated to better advantage by the Kendall Process; this can be accepted as an axiom.

The Kendall system of gold and silver milling comprises: (1) the Extraction Process, in which the chemical solution extracts the values from the ores; (2) the Recovery Process, by which the gold and silver are obtained from the solution, and (3) a modified form of plant, not indispensable, but permitting the use of unskilled labor. Owners of mines and reduction works can obtain full information on application to

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Miners will find the ore tariffs on page 18 reliable. We have special arrangements with the different railroads to receive any changes as soon as made.

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**Assayer and Chemist,**

(Established 1879)

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Gold silver and lead, \$1.00; any two of the above, 75c; any one of above, 50c; copper analysis, \$1; platinum, nickel or tin, \$5.00.  
Write for full price list and mailing envelopes.

**C. W. KEMPTON**

Mining Engineer

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Indispensable in Deep Mining.

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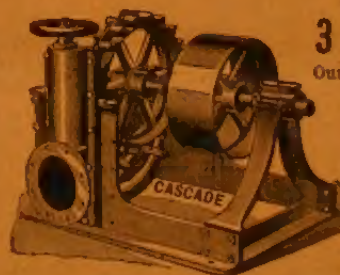
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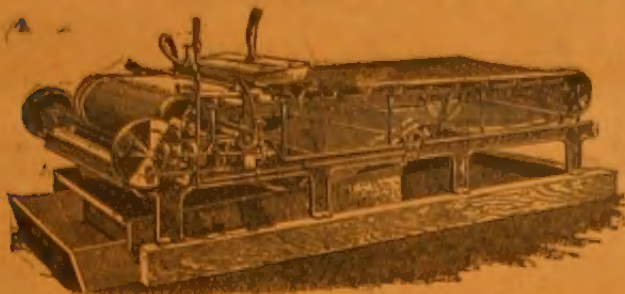
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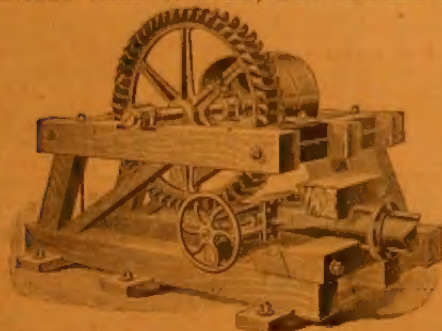
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